

Servo Motors for SIMOVERT MASTERDRIVES

Asynchronous Servo Motors

1PH4 Motors
Water Cooling

Selection and Ordering Data with SIMOVERT MASTERDRIVES Vector Control¹⁾

Rated Rotational Speed	Shaft Height	Rated Output	Rated Torque	Rated Current	Rated Voltage	Speed during Field Weakening ²⁾	Max. Permissible Continuous Speed ³⁾	Max. Speed ⁴⁾	1PH4 Asynchronous Motors
n_{rated}		P_{rated}	M_{rated}	I_{rated}	V_{rated}	n_1	n_{S1}	n_{max}	
rpm	SH	kW (HP)	Nm (lb _f -ft)	A	V	rpm	rpm	rpm	Order No.
Supply voltage 3-ph. AC 400 V for SIMOVERT MASTERDRIVES Vector Control									
1750	100	8.8 (11.8)	48 (35.4)	20.5	400	2800	5600	8750	1PH4 103 – 4  F56
		12.8 (17.26)	70 (51.6)	28	400	2600	5600	8750	1PH4 105 – 4  F56
		16.3 (21.85)	89 (65.6)	35.5	400	2800	5600	8750	1PH4 107 – 4  F56
	132	17.5 (23.46)	96 (70.8)	35.5	400	2100	5200	8000	1PH4 133 – 4  F56
		25.5 (34.18)	139 (102.5)	52	400	2500	5200	8000	1PH4 135 – 4  F56
		31.5 (42.26)	172 (126.9)	63	400	2300	5200	8000	1PH4 137 – 4  F56
	160	43 (57.64)	235 (173.3)	88	400	2800	4000	6500	1PH4 163 – 4  F56
		54 (72.39)	295 (217.6)	107	400	2600	4000	6500	1PH4 167 – 4  F56
		61 (81.8)	333 (245.6)	117	400	2400	4000	6500	1PH4 168 – 4  F56
Supply voltage 3-ph. AC 480 V for SIMOVERT MASTERDRIVES Vector Control									
2000	100	9.5 (12.73)	45 (33.2)	19.5	450	3300	5600	9000	1PH4 103 – 4  F56
		14 (18.77)	67 (49.4)	26.5	450	3000	5600	9000	1PH4 105 – 4  F56
		18 (24.13)	86 (63.4)	34.5	450	3200	5600	9000	1PH4 107 – 4  F56
	132	19 (25.47)	91 (67.1)	33.5	450	2400	5200	8000	1PH4 133 – 4  F56
		28 (37.53)	134 (98.8)	50	450	2700	5200	8000	1PH4 135 – 4  F56
		34 (45.58)	162 (119.5)	59	450	2600	5200	8000	1PH4 137 – 4  F56
	160	47 (63)	224 (165.2)	84	450	3000	4000	6500	1PH4 163 – 4  F56
		58 (77.75)	277 (204.3)	101	450	3000	4000	6500	1PH4 167 – 4  F56
		65 (87.13)	310 (228.7)	110	450	2800	4000	6500	1PH4 168 – 4  F56

- Encoder:
Incremental encoder HTL 1,024 pulses/revolution
Incremental encoder HTL 2,048 pulses/revolution

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Selection and Ordering Data with SIMOVERT MASTERDRIVES Motion Control¹⁾

Power Factor	Magnetizing Current	Rated Efficiency	Rated Frequency	Moment of inertia	Weight, approx.	1PH4 Asynchronous Motors	SIMOVERT MASTERDRIVES MC Inverter/Converter Rated Current	
	I_μ	η_{rated}	f_{rated}	J			I_{rated}	
$\cos \varphi$	A		Hz	kgm ² (lb _f -in-s ²)	kg (lb)	Order No.	A	Order No.
Supply voltage 3-ph. AC 400 V for SIMOVERT MASTERDRIVES Motion Control								
0.74	12	0.820	52.8	0.017 (0.1504)	52 (114.7)	1PH4 103 – 4 . F56	20.5	6SE7 022 – 1 EP50
0.78	13.5	0.836	52.9	0.024 (0.2124)	67 (147.7)	1PH4 105 – 4 . F56	34	6SE7 023 – 4 EP50
0.77	18.5	0.851	52.5	0.031 (0.2743)	80 (176.4)	1PH4 107 – 4 . F56	37.5	6SE7 023 – 8 D51
0.81	13	0.877	51.8	0.046 (0.4071)	90 (198.5)	1PH4 133 – 4 . F56	37.5	6SE7 023 – 8 D51
0.79	24	0.890	51.4	0.071 (0.6283)	112 (247)	1PH4 135 – 4 . F56	59	6SE7 026 – 0 D51
0.81	24	0.895	51.5	0.085 (0.7522)	130 (286.7)	1PH4 137 – 4 . F56	72	6SE7 027 – 2 D51
0.77	45	0.905	50.9	0.170 (1.5045)	175 (385.9)	1PH4 163 – 4 . F56	92	6SE7 031 – 0 E50
0.79	48	0.910	51.0	0.206 (1.8231)	210 (463.1)	1PH4 167 – 4 . F56	124	6SE7 031 – 2 F50
0.81	46	0.913	51.0	0.220 (1.947)	240 (529.2)	1PH4 168 – 4 . F56	124	6SE7 031 – 2 F50
Supply voltage 3-ph. AC 480 V for SIMOVERT MASTERDRIVES Motion Control								
0.75	11.5	0.841	61.2	0.017 (0.1504)	52 (114.7)	1PH4 103 – 4 . F56	25.5	6SE7 022 – 6 C51
0.78	13.5	0.854	61.3	0.024 (0.2124)	67 (147.7)	1PH4 105 – 4 . F56	34	6SE7 023 – 4 C51
0.78	18	0.867	61.0	0.031 (0.2743)	80 (176.4)	1PH4 107 – 4 . F56	37.5	6SE7 023 – 8 D51
0.82	12	0.887	60.2	0.046 (0.4071)	90 (198.5)	1PH4 133 – 4 . F56	37.5	6SE7 023 – 8 D51
0.79	22	0.901	59.8	0.071 (0.6283)	112 (247)	1PH4 135 – 4 . F56	59	6SE7 026 – 0 D51
0.81	23	0.905	59.9	0.085 (0.7522)	130 (286.7)	1PH4 137 – 4 . F56	72	6SE7 027 – 2 D51
0.78	42	0.914	59.3	0.170 (1.5045)	175 (385.9)	1PH4 163 – 4 . F56	92	6SE7 031 – 0 E50
0.80	44	0.920	59.4	0.206 (1.8231)	210 (463.1)	1PH4 167 – 4 . F56	124	6SE7 031 – 2 F50
0.82	43	0.921	59.4	0.220 (1.947)	240 (529.2)	1PH4 168 – 4 . F56	124	6SE7 031 – 2 F50
Converter Inverter							E T	

- 1) For rated currents < 37.5 A, Compact PLUS devices are assigned.
2) n_1 : Maximum permissible speed at constant power or speed where for $P = P_{\text{rated}}$, there is still a 30% power reserve up to the stall limit.
3) n_{S1} : Maximum permissible speed that is continuously permitted without speed duty cycles.

- 4) n_{max} : Maximum rotational speed. This speed may not be exceeded!
Notice: Due to $f_{\text{max.}} < 2 \cdot f_{\text{rated}}$, the maximum rotational speed is sometimes limited to smaller values.

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Rated Rotational Speed	Shaft Height	Rated Output	Rated Torque	Rated Current	Rated Voltage	Speed during Field Weakening ²⁾	Max. Permissible Continuous Speed ³⁾	Max. Speed ⁴⁾	1PH4 Asynchronous Motors
n_{rated}		P_{rated}	M_{rated}	I_{rated}	V_{rated}	n_1	n_{S1}	n_{max}	
rpm	SH	kW (HP)	Nm (lb _f -ft)	A	V	rpm	rpm	rpm	Order No.
Supply voltage 3-ph. AC 400 V for SIMOVERT MASTERDRIVES Motion Control									
1500	100	7.5 (10.05)	48 (35.4)	20.5	350	2400	3000	3000	1PH4 103 – 4 ■ F56
		11 (14.75)	70 (51.6)	28	350	2100	3000	3000	1PH4 105 – 4 ■ F56
		14 (18.77)	89 (65.6)	35.5	350	2400	3000	3000	1PH4 107 – 4 ■ F56
	132	15 (20.11)	95 (70.1)	35	350	1800	3000	3000	1PH4 133 – 4 ■ F56
		22 (29.49)	140 (103.3)	52	350	2100	3000	3000	1PH4 135 – 4 ■ F56
		27 (36.19)	172 (126.9)	62	350	1900	3000	3000	1PH4 137 – 4 ■ F56
	160	37 (49.6)	236 (174.1)	89	350	2400	3000	3000	1PH4 163 – 4 ■ F56
		46 (61.7)	293 (216.1)	107	350	2200	3000	3000	1PH4 167 – 4 ■ F56
		52 (69.7)	331 (244.1)	117	350	2100	3000	3000	1PH4 168 – 4 ■ F56
Supply voltage 3-ph. AC 480 V for SIMOVERT MASTERDRIVES Motion Control									
1750	100	8.8 (11.8)	48 (35.4)	20.5	400	2800	3500	3500	1PH4 103 – 4 ■ F56
		12.8 (17.16)	70 (51.6)	28	400	2600	3500	3500	1PH4 105 – 4 ■ F56
		16.3 (21.85)	89 (65.6)	35.5	400	2800	3500	3500	1PH4 107 – 4 ■ F56
	132	17.5 (23.46)	96 (70.8)	35.5	400	2100	3500	3500	1PH4 133 – 4 ■ F56
		25.5 (34.18)	139 (102.5)	52	400	2500	3500	3500	1PH4 135 – 4 ■ F56
		31.5 (42.23)	172 (126.9)	63	400	2300	3500	3500	1PH4 137 – 4 ■ F56
	160	43 (57.64)	235 (173.3)	88	400	2800	3500	3500	1PH4 163 – 4 ■ F56
		54 (72.39)	295 (217.6)	107	400	2600	3500	3500	1PH4 167 – 4 ■ F56
		61 (81.77)	333 (245.6)	117	400	2400	3500	3500	1PH4 168 – 4 ■ F56

- Encoder:
 - Incremental encoder sin/cos 1 V_{pp} (without C track or D track)
 - Incremental encoder sin/cos 1 V_{pp} (with C track and D track)
 - Absolute encoder EnDat 2,048 pulses/revolution

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Power Factor	Magnetizing Current	Rated Efficiency	Rated Frequency	Moment of inertia	Weight, approx.	1PH4 Asynchronous Motors	SIMOVERT MASTERDRIVES VC Inverter/Converter Rated Current	
$\cos \varphi$	I_μ	η_{rated}	f_{rated}	J	kg (lb)	Order No.	I_{rated}	Order No.
	A		Hz	kgm ² (lb _f -in-s ²)			A	
Supply voltage 3-ph. AC 400 V for SIMOVERT MASTERDRIVES Vector Control								
0.75	11.5	0.841	61.2	0.017 (0.1504)	52 (114.7)	1PH4 103 – 4 . F56	20.5	6SE7 022 – 1 EP60
0.78	13.5	0.854	61.3	0.024 (0.2124)	67 (147.7)	1PH4 105 – 4 . F56	34	6SE7 023 – 4 ■ P60
0.78	18	0.867	61.0	0.031 (0.2743)	80 (176.4)	1PH4 107 – 4 . F56	37.5	6SE7 023 – 8 ■ D61
0.82	12	0.887	60.2	0.046 (0.4071)	90 (198.5)	1PH4 133 – 4 . F56	37.5	6SE7 023 – 8 ■ D61
0.79	22	0.901	59.8	0.071 (0.6283)	112 (247)	1PH4 135 – 4 . F56	59	6SE7 026 – 0 ■ D61
0.81	23	0.905	59.9	0.085 (0.7522)	130 (286.7)	1PH4 137 – 4 . F56	72	6SE7 027 – 2 ■ D61
0.78	42	0.914	59.3	0.170 (1.5045)	175 (385.9)	1PH4 163 – 4 . F56	92	6SE7 031 – 0 ■ E60
0.80	44	0.920	59.4	0.206 (1.8231)	210 (463.1)	1PH4 167 – 4 . F56	124	6SE7 031 – 2 ■ F60
0.82	43	0.921	59.4	0.220 (1.947)	240 (529.2)	1PH4 168 – 4 . F56	124	6SE7 031 – 2 ■ F60
Supply voltage 3-ph. AC 480 V for SIMOVERT MASTERDRIVES Vector Control								
0.74	11.2	0.856	69.3	0.017 (0.1504)	52 (114.7)	1PH4 103 – 4 . F56	20.5	6SE7 022 – 1 EP60
0.79	12.9	0.870	69.4	0.024 (0.2124)	67 (147.7)	1PH4 105 – 4 . F56	34	6SE7 023 – 4 ■ P60
0.78	17.1	0.879	69.1	0.031 (0.2743)	80 (176.4)	1PH4 107 – 4 . F56	37.5	6SE7 023 – 8 ■ D61
0.83	11.9	0.899	68.4	0.046 (0.4071)	90 (198.5)	1PH4 133 – 4 . F56	37.5	6SE7 023 – 8 ■ D61
0.80	21.5	0.909	68.1	0.071 (0.6283)	112 (247)	1PH4 135 – 4 . F56	59	6SE7 026 – 0 ■ D61
0.83	22.1	0.914	68.1	0.085 (0.7522)	130 (286.7)	1PH4 137 – 4 . F56	72	6SE7 027 – 2 ■ D61
0.79	39.7	0.923	67.6	0.170 (1.5045)	175 (385.9)	1PH4 163 – 4 . F56	92	6SE7 031 – 0 ■ E60
0.81	42.6	0.926	67.6	0.206 (1.8231)	210 (463.1)	1PH4 167 – 4 . F56	124	6SE7 031 – 2 ■ F60
0.83	41.0	0.928	67.6	0.220 (1.947)	240 (529.2)	1PH4 168 – 4 . F56	124	6SE7 031 – 2 ■ F60
Converter Inverter							E T	

- For rated currents < 37.5 A, Compact PLUS devices are assigned.
- n_1 : Maximum permissible speed at constant power or speed where for $P = P_{\text{rated}}$, there is still a 30% power reserve up to the stall limit.
- n_{S1} : Maximum permissible speed that is continuously permitted without speed duty cycles.

- n_{max} : Maximum rotational speed. This speed may not be exceeded! Notice: Due to $f_{\text{max.}} < 5 \cdot f_{\text{rated}}$, the maximum rotational speed is sometimes limited to smaller values.